

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 41

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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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AND INTERFERENCES

Ex parte ANDREW J. OUDERKIRK, MICHAEL F. WEBER,
JAMES M. JONZA and CARL A. STOVER

Appeal No. 2003-1484
Application No. 09/013,819¹

HEARD: DECEMBER 9, 2003

Before THOMAS, FLEMING and SAADAT, Administrative Patent Judges.
SAADAT, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the Examiner's final rejection of claims 1-9, 13, 14 and 48, which are all of the claims pending in this application. Claims 10-12 and 15-47 have been cancelled.

5 We reverse.

¹ Application for patent filed January 27, 1998, which is a continuation of Application No. 08/402,042, filed March 10, 1995, now abandoned, which is a continuation-in-part of Application No. 08/171,098, filed December 21, 1993, now abandoned, and is a continuation-in-part of Application No. 08/359,436, filed December 20, 1994, now abandoned, and is a continuation-in-part of Application No. 08/360,215, filed December 20, 1994, now abandoned.

BACKGROUND

Appellants' invention relates generally to optical polarizers and more specifically, to a polarizer formed of a combination of a reflective polarizer and a dichroic polarizer. The combination has high reflectivity for light of a first polarization and high transmission for light of a second, perpendicular polarization from the reflective polarizer side of the optical polarizer, and high absorption for light of the first polarization and high transmission for light of the second, perpendicular polarization from the dichroic polarizer side (specification, page 2). As depicted in Figure 1, the optical polarizer 10 includes a reflective polarizer 12 and a dichroic absorbing polarizer 11 (specification, pages 4 & 5).

Representative independent claim 1 is reproduced below:

1. An optical polarizer, comprising:

a polymeric reflective polarizer including a first and second polymeric material, at least one of the first and second polymeric material being birefringent such that a refractive index difference between the first and second polymeric material for light having a first polarization state is large enough to substantially reflect the light having the first polarization state and a refractive index difference between the first and second polymeric material for light having a second polarization state is small enough to substantially transmit the light having the second polarization state; and

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an absorbing polarizer disposed in close proximity to the polymeric reflective polarizer and aligned to substantially absorb light of the first polarization state and to substantially transmit light of the second polarization state, the absorbing polarizer directly receiving light which is not reflected by the polymeric reflective polarizer.

The Examiner relies on the following reference in rejecting the claims:

Kondo et al (Kondo) 5,157,526 Oct. 20, 1992

Claims 1, 2, 8, 9, 14 and 48 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Kondo.

Claims 3-7 and 13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kondo.

We make reference to the answer (Paper No. 33, mailed December 11, 2002) for the Examiner's reasoning, and to the appeal brief (Paper No. 32, filed September 16, 2002)² and the reply brief (Paper No. 36, filed March 31, 2003) for Appellants' arguments thereagainst.

OPINION

With respect to the 35 U.S.C. § 102 rejection of the claims, Appellants argue that element 7 of Kondo, as characterized by the Examiner to be a reflective polarizer, actually converts two

² The appeal brief was submitted as an amended brief in response to a PTO-462 (Notification of Non-compliance With 37 CFR 1.192(c)) (Paper No. 31, mailed August 27, 2002) which corrected the original appeal brief (Paper No. 30, filed June 7, 2002).

polarization states to the same polarization as the light is transmitted through the element (brief, page 10; reply brief, page 2). Further Referring to Kondo's Figure 7, Appellants point out that element 7 is commonly known as a polarization converter as all light is transmitted through the element (brief, page 10). Additionally, Appellants argue that the light having the first polarization state is transmitted by the absorbing polarizer 13 of Kondo whereas the claimed absorbing polarizer absorbs the light that is reflected by the reflective polarizer (reply brief, page 2).

In response to Appellants' arguments, the Examiner argues that the claimed term "reflective polarizer" does not preclude element 7, as disclosed in Figure 7 of Kondo, from being considered as a reflective polarizer (answer, page 3). The Examiner further asserts that the parallel polarization wave component (P-wave) is reflected at the boundary of mediums I and II while the perpendicular polarization component (S-wave) is transmitted through the boundary (id.).

A rejection for anticipation under section 102 requires that the four corners of a single prior art document describe every element of the claimed invention, either expressly or inherently, such that a person of ordinary skill in the art could practice

the invention without undue experimentation. See Atlas Powder Co. v. Ireco Inc., 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999); In re Paulsen, 30 F.3d 1475, 1478-79, 31 USPQ2d 1671, 1673 (Fed. Cir. 1994).

After reviewing Kondo, we agree with Appellants' assertion that the claimed absorbing polarizer to absorb light of the first polarization and reflected by the reflective polarizer, is absent in the reference. As depicted in Figures 3(a) and 3(b), Kondo discloses a polarizer structure composed of two kinds of mediums I and II which are laminated to form alternate layers at an inclined angle with respect to the light incidence surface (Col. 5, lines 33-40). Depending on the angle of inclination of the incident light and the relative refractive indices of the two mediums, the incident light is transmitted through medium I and is wholly reflected back and forth off the boundaries of the two mediums and subsequently transmitted through the surface opposite to the incident surface (col. 5, lines 41-52). The light component that is transmitted through medium II, as depicted in Figure 3(b), is transmitted with its polarization plane changed to be the same as the polarization plane of the reflected and transmitted light (col. 6, lines 5-10). Therefore, by changing the polarization of the component that is not reflected to that

of the component that is reflected and transmitted, all components of the incident light are eventually transmitted through the polarizer element 7 without weakening the strength of the light by absorption (col. 6, lines 10-13).

As discussed above, what the Examiner characterizes in Kondo as the absorbing polarizer does not absorb light of the first polarization state that is reflected by the reflective polarizer. In fact, both the reflected light and the polarized light that are transmitted through element 7 are transmitted by absorbing polarizer 13 of Kondo. In that regard, Kondo changes the polarization of the non-reflected light that is transmitted through medium II to the polarization of the light that is reflected from the boundary of mediums I and II and transmits both the reflected light and the polarized light through absorbing polarizer 13. Thus, Kondo does not anticipate claim 1, nor the other independent claim 48 which recite an absorbing polarizer that absorbs light of the first polarization state to a greater extent than light of the second polarization state. Accordingly, the 35 U.S.C. § 102 rejection of claims 1, 2, 8, 9, 14 and 48 over Kondo cannot be sustained.

Turning now to the 35 U.S.C. § 103 rejection of claims 3-7 and 13, we note that the Examiner further asserts that forming

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polarizers of a polymeric material mixed with a dichroic dye would have been within the level of one of ordinary skill in the art and obvious to combine with the polarizer of Kondo (final, page 5). However, the Examiner, in asserting that using a polymeric material mixed with a dichroic dye is commonly known, has not provided additional evidence to overcome the deficiencies of Kondo as discussed above with respect to the rejection of claims 1, 2, 8, 9, 14 and 48, and therefore, has failed to establish a prima facie case of obviousness. Accordingly, we do not sustain the 35 U.S.C. § 103 rejection of claims 3-7 and 13 over Kondo.

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CONCLUSION

In view of the foregoing, the decision of the Examiner rejecting claims 1, 2, 8, 9, 14 and 48 under 35 U.S.C. § 102 and rejecting claims 3-7 and 13 under 35 U.S.C. § 103 is reversed.

REVERSED

JAMES D. THOMAS)
Administrative Patent Judge)
MICHAEL R. FLEMING)
Administrative Patent Judge)
MAHSHID D. SAADAT)
Administrative Patent Judge)
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